



**National  
Aeronautical  
Laboratory**

**Documentation Sheet**

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SECRET

*Title* : STEADY PRESSURE MEASUREMENTS  
IN THE STRAP ON BOOSTERS  
INTERFERENCE REGION OF 1/40 SCALE  
PSLV CONFIGURATION

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*Author(s)* : SAJEER AHMED AND  
S. SELVARAJAN

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*Abstract* :

Wind tunnel studies were carried out to obtain surface pressure distribution in the strap-on booster interference region of 1/40 scale PSLV Configuration. Tests were done in the Mach number range of 0.5 to 4.0 and at incidences  $0^\circ$ ,  $4^\circ$  and  $-4^\circ$ . Tests were made with the model both in pitch and yaw configuration. Surface pressure measurements were also made at supersonic Mach numbers of 3.1, 3.5 and 4.0 for the configuration; core vehicle with 2 boosters and 2 SITVC tanks for both pitch and yaw configuration. The test Reynolds number was varied from 1.2 to 2.6 millions based on the maximum diameter.

The pressure distribution showed significant interference effects of boosters on the core vehicle. At an incidence of zero degree, it is observed that the positive pressures in the upstream interference region associated with flow compression increases with increase in Mach number and the flow expansion downstream in the vicinity of boosters shoulder represented by negative pressure peak increases upto  $M=0.9$  and decreases with further increase in Mach number.